

REMARKS

In response to the indefiniteness rejection, claim 12 has been amended. Applicants also note that the meaning of claim 12, as amended, is made clear from the specification, for example, the passage found at page 5, lines 28-29 and at Fig. 6.

In response to the § 102(b) and § 103(a) rejections, claim 10 has been amended to indicate that the sensing circuitry is arranged to determine the presence of any of the conductive labels between the electrodes, to deduce the presence of the target sample. The Examiner cited Ewart, but Ewart is only concerned with making a detection of a change in capacitance caused by particle reporters provided as labelling entities. The particle reporters in Ewart enhance the sensitivity of the biosensors and are capable of detecting the addition or subtraction of a single particle reporter to or from the test surface. The reporter particles may be selected from the group consisting of dielectric particles, magnetic particles, solid-phase phosphor particles, particles having a combination of at least two of dielectric, magnetic and phosphorescent properties, phages, phage incorporating reporter material, and mixtures thereof. The dielectric constant of the label/tag is chosen to be optimally different from that of the buffer medium, usually water, to effect the maximum capacitance/permittivity change.

Accordingly Ewart neither teaches nor suggests the idea of circuitry able to detect a conductive label, and to do so using a capacitive sensor. Such capacitive sensors were conventionally used for detecting non-conductive labels, and resistance sensors used for

detecting conductive labels. In contrast, the new combination of a capacitive sensor with conductive labels, as claimed, means that the detection of the target is no longer dependent on properties of the label such as permittivity of the label, or contact resistance, which are difficult to control. Hence the detection can be more reliable. There is no suggestion of this in Ewart, alone or in combination with any of the cited references. The rejection of claim 10 and its dependent claims under 35 U.S.C. §§ 102(b) and 103(a) should therefore be withdrawn.

Regarding the rejection of claim 1 and its dependent claims under 35 U.S.C. § 103(a) over Park, this claim has now been amended to specify that the target is detected using electrodes having non-conductive surfaces.

Claim 1 also specifies explicitly that the sensing step is carried out by a non-ohmic contacting, capacitive detection of the presence of the conductive labels. Park is cited in the present application and is concerned with resistive detection of conductive labels. As the Examiner points out, Park does mention that in principle capacitive or conductivity measurements can be made to determine the number of particles. There is no disclosure of how to carry out the capacitive measurements. There is no discussion of whether to alter the arrangement from conductive to non-conductive labels for example, or whether to alter the arrangement from a conductive contact to a non-ohmic contact with the electrodes. Therefore this is not a proper disclosure of capacitive measurement, which is acknowledged by the Examiner.

The Examiner argues that it would be obvious to alter the resistive arrangement of Park to use capacitive detection since it enables detection of different sizes of particles without needing sufficient particles to bridge the gap between the contacts. Whether or not this is correct, it does not address the issue of altering the disclosure of Park to use non-ohmic contact detection, by having non-conductive surfaces on the electrodes. In case the Examiner assumes that non-ohmic detection would occur in Park when particles are present without enough to fill the gap and cause the circuit to be completed, claim 1 has now been clarified to indicate explicitly that the electrodes have non-conducting surfaces, so there is always non-ohmic contact detection, even when the gap is bridged by one or more particles or labels.

This use of non-ohmic contacting detection is notable in that variations in contact resistance, which would affect measured capacitance, are no longer present. Therefore the capacitive measurement can be more reliable. There is no suggestion of such non-ohmic contacting measurement using electrodes having non-conductive surfaces in Park, nor any hint of the advantages it can bring. Indeed the fact that the authors of Park chose only to explore the resistive ohmic contact method is evidence that they had not conceived the advantages of using non-conducting surfaces on electrodes to get a non-ohmic contact, as in the present invention. Even if the skilled person had tried altering Park to use capacitive detection, for the reasons set out by the Examiner, this does not provide any incentive or reason to go further and alter the ohmic contacts to non-ohmic contacts. The Examiner

seems to acknowledge that the capacitive detection could work with ohmic contacts. Even if Park were notionally combined with Ewart, which is not admitted to be obvious, there is no suggestion in either document of capacitive detection of conductive labels using non-ohmic contacts, and no suggestion of the above mentioned advantages of doing so.

For all of the aforementioned reasons, the § 103(a) rejections should be withdrawn.

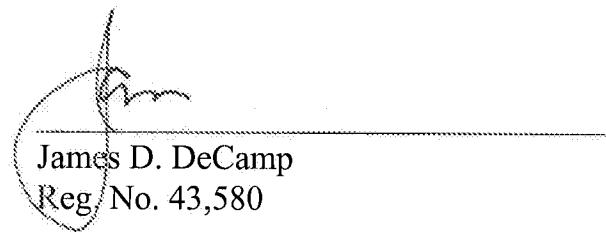
REMARKS

Enclosed is a Petition to extend the period for replying to the Office action for one (1) month, to and including November 24, 2008 (as November 23rd falls on a Sunday), and payment of the required extension fee.

If there are any additional charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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